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Goddard Space Flight Center  
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# Inside Wallops

## *Aerosonde UAV Completes First Operational Flights at Wallops*

A small, unmanned airplane recently conducted flights along the Virginia coast showing its capability to support NASA science missions.

NASA and Aerosonde North America, Inc., conducted several flights of the Aerosonde unmanned aerial vehicle (UAV) February 20 through 27.



*Photo By Keith Koehler*

*(Left to Right) Maurice Gonella, Aerosonde; Chuck Williams, Wallops; and Stephen Katzberg, Langley Research Center, test the GPS reflectometer in an Aerosonde UAV fuselage.*

The flights showed the ability of the small UAV to operate from the runways of the NASA Goddard Space Flight Center's Wallops Flight Facility, Wallops Island, Va.; fly a predetermined flight mission; and gather scientific data. The flights operated in the controlled airspace at Wallops, but the concepts demonstrated could be applicable to future missions over less tightly controlled airspace.

The Aerosonde UAV flew a NASA instrument that measures Global Positioning System (GPS) signals reflected from the Earth surface. Using these reflected signals over land, scientists can infer surface soil moisture and over water derive winds speeds and surface roughness or waves heights.

Stephen Katzberg, NASA Langley Research Center's principal investigator for the GPS reflection experiment, said, "The Aerosonde UAV with the NASA GPS reflectometer performed well together and we are currently extracting surface reflection information from the flight data."

He noted that the instrument has flown on manned aircraft but this is the first

time it was flown on a UAV. "The ability to fly this instrument on the Aerosonde will allow us to fly into or around weather systems such as tropical storms without endangering humans," Katzberg said.

In addition to the NASA instruments, Aerosonde North America flew a suite of instruments to measure temperature,

pressure, humidity and wind speeds in the atmosphere.

Maurice Gonella, Aerosonde UAV Facility manager at Wallops, said, "We are pleased to be able to collaborate with NASA in proving the operational capability of the GPS instrument on a UAV. These flights open the door to develop and fly other science instruments

around the world to study Earth's systems."

The Aerosonde UAV offers scientists the opportunity to conduct long duration missions by flying continuously for more than 30 hours.

Long endurance UAVs, such as the Aerosonde UAV, have the potential to fill the gap between satellites and surface networks in the integrated global observing system. The in-situ measurements gathered by instruments on these UAVs are used in conjunction with the larger global datasets obtained from satellites.

Jay Pittman, chief of the Wallops Range and Mission Management Office, said, "These operational flights are a major step in developing the UAV for scientific studies. In cooperation with Aerosonde and the scientific community, we are excited about the opportunities small sensors and UAVs offer in Earth science research."

"UAVs open the door to completely new mission concepts that include so-called "sensor web" missions where UAV platforms work collaboratively to gather scientific data. We look forward to conducting these flights world-wide and

to contributing to the Agency's ability to utilize next-generation platforms in support of its missions," said Pittman.

NASA and Aerosonde are determining the feasibility of conducting Earth science research using small, long endurance UAVs through a cooperative agreement.

For information about NASA on the Internet, visit <http://www.nasa.gov>

For information about the Aerosonde UAV, visit <http://www.aerosonde.com>

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## *Wallops Shorts.....*

### **In the News**

The Daily Times

"Fishermen Face Fewer Off Shore Disruptions"

### **On the Road**

Scott Webb, NASA Wallops Information Services and Advanced Technology Branch, and Deanna Shreves, NASA Visitor Center, participated in a Career Day event at Northampton High School on February 25. Approximately 300 juniors and seniors from Broadwater Academy and Northampton High School took part.

Keith Koehler, Public Affairs Office, made a presentation to the Salisbury Rotary Club on March 4.

Barton Bull, GN&C and Mission Systems Engineering Branch, participated in a Career Day at Accawmacke Elementary School on March 5.

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## *Employee Coffee*

The next employee coffee will be held 8 to 9 a.m., Thursday, March 11, in the



Range Control Center, Bldg. E-106. All employees are invited to attend. The first half-hour is set aside for networking with fellow employees. The second half-hour will feature a presentation by Code 200 on the facility's Master Plan.

**Principal Investigator Reports on Mission**

“Sounding rocket 21.25 was launched at 04:44:01 U.T. on June 29, 2001 from Wallops Island, Virginia. The rocket was launched in the presence of quasi-periodic radar echoes and sporadic-E conditions as observed with the University of Illinois 50 MHz backscatter radar set up at Ft. Macon, North Carolina, and the Wallops ionosonde. The rocket payloads successfully pierced the sporadic-E layer on both the upleg and the downleg, as clearly shown in the *in-situ* plasma density measurements.....

I would like to take this opportunity to extend my commendation to our entire payload team, which, under the direction of Jay Scott, designed, built, tested, and launched a complicated pair of payloads. In view of the launch operations, we also commend the entire Wallops team led by John Hickman, for enabling the launch of rocket 21.125 to take place during the desired geophysical event.”

“On December 14, 2002, sounding rocket 35.033 GE was launched from Spitzbergen, Norway, as part of a research program to study the earth’s northern hemisphere cusp. The rocket was fired in the presence of an active cusp as evidenced by strong CUTLASS radar echoes and by the interplanetary magnetic field conditions observed real-time by the ACE satellite. The rocket successfully pierced the cusp open/closed field line boundary as revealed by the scientific sensors on the payload....

The support from the Wallops NSROC team was excellent and contributed significantly to the success of the campaign. Everyone involved in the payload design, fabrication and testing, as well as launch support, demonstrated first-rate skills in terms of engineering, operations, and problem solving. Our entire NSROC payload team, led by Tracy Gibb, deserves high praise. We also salute Bruce Scott, who successfully led the field operations when Gibb could not be present.”

Robert F. Pfaff, Jr.  
Principal Investigator  
NASA Goddard Space Flight Center  
Electrodynamics Branch

**National Women’s History Month Panel Discussion**

Brown Bag Luncheon  
March 10, 2004  
11:30 - 12:30  
Williamsburg Room - Building E-2

Panel members: Alison McNally, Code 100; Sharon Wong, Code 100; Lisa Johnson, Code 120; Caroline Massey, Code 200; Peggy Jester, RSC. To register and for additional information, contact Terry Ewell at ext. 1133

NO TRAINING REQUEST REQUIRED

**St. Patrick’s Day Celebration**

Wednesday, March 17  
4:35 p.m. in F-3  
Come be Irish for awhile!  
Lots of food and the Music Club, too!!



**2003 Mentoring Program Closing Ceremony**



Courtesy of Pat Dworske

Mentors/mentees pictured above were recognized in the 2003 Mentoring Program Closing Ceremony on February 10th. Left to right: Steve Nelson, Lisa Bass, Richard Rogers, Judy Vucovich, David Wilcox and Barbara Justis. Other participants in the 2003 program were Lisa Johnson, Barbara Lusby, Mike Patterson, Jay Pittman, and Jeffrey Reddish.

**Working Woman’s Tool Kit**

The WOW FWP Training Subcommittee announces a new series of Brown Bag Seminars for 2004—“Working Woman’s Tool Kit.” Guest speakers will examine various *tools* from our kit and explain how those tools can enhance our personal lives and our careers.

Join us on April 7 as we examine the first item from the kit, “Tools for Money Management,” featuring a personal budget and finance expert. Dr. Jeanne Roll, M.D., will present the second item from the kit, “Tools for Your Health,” on May 12. And finally, Caroline Massey, Assistant Director for Management Operations, will share the uses of “Tools for Career Enhancement,” on July 14.

We invite all civil servant, contractor, and partnering employees to bring their lunch and participate in these informative seminars. Each informative session of “Working Woman’s Tool Kit” will be held in the E-2 Williamsburg Room from 1130 a.m. to 1230 p.m.

**Career Coach at Wallops**

Career Coach, Linda Jones, will be at WFF on March 29 and 30 for private appointments with Civil Service employees.

To schedule an individual confidential appointment to talk with Ms. Jones, please contact Tracey White at extension 6-7823.



**House For Sale**

Location: just outside of Pocomoke City in the country

Size: 1492 sq. ft. - 3 bed, 2 bath

Lot: 1 acre cleared

Price: asking \$162,000

Contact: Craig Stallings at 410-957-6713

link for more info and pictures:  
<http://www.myfsbo.com/2646>

*Inside Wallops* is an official publication of Goddard Space Flight Center and is published by the Wallops Office of Public Affairs, Extension 1584, in the interest of Wallops employees. Recent and past issues of *Inside Wallops* also may be found on the NASA Wallops Flight Facility homepage: [www.wff.nasa.gov](http://www.wff.nasa.gov)

Editor

Betty Flowers